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NEW AMERICAN SYRPHIDÆ (DIPTERA), WITH NOTES

By C. H. Curran

During a recent visit of Dr. C. L. Fluke to The American Museum of Natural History I had called to my attention a number of interesting species of Syrphidæ, including several described species that I had not seen before, as well as several new forms. In the following pages I present descriptions of several new species and notes on others. The types of the new forms are deposited in the Museum Collection.

Mixogaster cubensis, new species

Related to *breviventris* Kahl but with longer and much narrower second abdominal segment. Length, 9 to 12 mm.

Male.—Head reddish yellow; a large spot on either side of the lower part of the front, a triangle extending from the ocelli to the vertex and the occiput, except above and below, black; the ocellar area sometimes surrounded by a large brown spot. A median facial vitta and a supra-antennal rectangle wine-red, the lunula black. Occiput cinereous pollinose. Hair yellowish, black on the front, the sides of the front sometimes broadly yellow-haired above, the middle with a broad, transverse bare band. Face almost perpendicular, with a convexity just below the antennæ, the lower half very gently convex. Third antennal segment as long as the face, twice as long as the basal two segments combined, rather strongly constricted on the sub-basal third; first and third segments brown, the second and basal half of the third reddish yellow; arista reddish yellow, much shorter than the third antennal segment. Front a little wider than the face.

Mesonotum brown, the sides broadly yellow; pile reddish yellow, mostly black on the dark portion behind the suture. Pleura brownish red; the mesopleura mostly, a very large sternopleural spot, and most of the hypopleura yellow. Pectus and metanotum brownish black. Scutellum wholly yellow, with short, sparse, reddish-yellow hair.

Legs reddish yellow, the coxæ, trochanters, and broad bases of the femora brownish. Hair reddish yellow.

Wings with luteous tinge, yellowish brown in front of the third vein, the apex darker, the costal cell paler. Apex of the apical cell almost transverse, the discal cell about as long behind as anteriorly, the posterior cross-vein conspicuously curved inward and somewhat angular on its middle portion, sometimes emitting a stump of vein into the discal cell; usually a stump of vein projecting into the apical cell from the fourth vein a little before the end of the discal cell. Squamæ linear, brown. Halteres reddish.

Abdomen black, ferruginous, and yellow. First and second segments fused, ferruginous, the first broadly yellow on the sides, the second with the apex broadly yel-

low; third segment with the apical third or more, yellow; the fourth with a broad, apical, pale band. Genitalia broadly yellow apically, brown above and below. Hair black, reddish yellow on the pale portions and the broad apex of the abdomen. Venter concolorous with the dorsum. Second abdominal segment narrowest at the middle, gently widening toward either end, third widening from the base to the apical third, the fourth with almost parallel sides. Second and fourth segments of about equal length, much longer than the third.

FEMALE.—Face less distinctly convex above; third antennal segment somewhat shorter and broadened on less than the apical half; second abdominal segment shorter and widening from near the base, the fifth segment with a yellow posterior border.

TYPES.—Holotype, male, Sierra Maestra, Cuba, July 10–20, 1922 (C. H. Ballou and S. C. Bruner); allotype, female, Santa Barbara, Isle of Pines, March 15, 1923 (S. C. Bruner). Paratypes: male, Sierra Maestra, July 10–20, 1920, and male, Pico Turquino, Cuba, July 20, 1922 (S. C. Bruner and C. H. Ballou).

ALLOGRAPTA Osten Sacken

The following key separates the species known to me.

TABLE OF SPECIES

1.—Pteropleura black on lowest two-thirds or more ..... 2.
A yellow band extends over the upper part of the sternopleura, lower part of the pteropleura, and on to the hypopleura ..... *obliqua* Say.

2.—Disc of the scutellum with a large, transverse, posteriorly convex black or brown spot ..... 3.
Disc of scutellum but slightly darkened ..... 7.

3.—Tip of the oral margin lying far above the lower edge of the eyes and considerably more prominent than the antennal base ..... 4.
Tip of oral margin situated only a little above the lower edge of the eyes and less prominent than the weak tubercle and base of the antennæ ..... 5.

4.—Hair of the anterior tibiæ wholly black; yellow fascia on the third abdominal segment separated from the base of the segment by at least its own width. *colombia* Curran.
Hair of anterior tibiæ practically all yellow; yellow fascia on third segment only narrowly separated from the base of the segment ..... *similis* Curran.

5.—Squamæ brown except basally; front of male black pilose ..... *fuscisquama* Curran.
Squamæ at most slightly infuscated; front of male usually almost all yellow pilose ..... 6.

6.—Black median spots on the bases of the third and fourth abdominal segments triangular ..... *venusta* Curran.
These spots almost orbicular, a little longer than wide ..... *cubana*, n. sp.

7.—Oral margin more prominent than the antennal base, the face projecting forward below and with a conspicuous tubercle; abdomen fasciate only ..... 8.
Oral margin not more prominent than the antennal base, the tubercle low and never conspicuous; abdomen with oblique spots on at least the fourth segment ..... 10.

8.—Hypopleura wholly dark ..... 9.
Hypopleura with a large, pale-yellow spot ..... *picticauda* Bigot.

9.—Fifth segment with four yellow spots.....*micrura* Osten Sacken.
Fifth segment with an arched yellow fascia.....*fasciata*, n. sp.
10.—Cheeks with a black band across the middle.....11.
Cheeks wholly yellow.....*pulchra* Shannon.
11.—Third abdominal segment with a geminate, median, yellow vitta.
exotica Wiedemann.
Third segment with only one pair of oblique or nearly parallel yellow spots...12.
12.—Pale spots on the third abdominal segment strongly oblique...*hortensis* Philippi.
Pale spots subparallel.....*piurana* Shannon.

Allograpta cubana, new species

Related to *venusta* Curran, but the black median spots on the third and fourth abdominal segments are short-oval or orbicular instead of triangular and are not produced posteriorly in the middle. Length, 7 to 7.5 mm.

MALE.—Face, cheeks, and broad borders of the frontal triangle pale yellow; a broad median facial vitta, a band on the cheeks, and most of the frontal triangle shining black. Vertical triangle and occiput black, the latter cinereous-white pollinose. Pile yellowish, white on most of the occiput, black on the vertical triangle and at least partly black on the frontal triangle. Oral margin less prominent than the antennal base. Antennæ reddish, the third segment broadly black above; arista brown.

Thorax shining black, with yellow markings as follows: the very broad lateral margins in front of the suture, the posterior calli, broad posterior border of the mesopleura except below, a smaller spot on the sternopleura, and a spot occupying the anterior part of the hypopleura. Scutellum yellow, with an oval, transverse black spot on the disc. Pile yellow, mostly black behind the suture and on the scutellum.

Legs yellowish; a very broad preapical black band on the posterior femora, a corresponding band basally on the posterior tibiæ, and the apical third of the posterior tibiæ black; tarsi brown. Pile pale yellow, black apically on the posterior femora and toward the apex on the posterior surface of the anterior four; wholly black on the posterior four tibiæ, on the posterior surface of the anterior pair, and on all the tarsi.

Wings hyaline; stigma scarcely darkened. Squamæ yellowish. Halteres yellow.

Abdomen reddish yellow and black. First segment yellow with the narrow posterior border black toward either side. Second segment black with the median third yellow, the pale fascia narrowed toward the middle and narrowly bordered with opaque black. Third segment with a large black basal triangle on either side, a suborbicular median basal spot, and a broad posterior fascia black, the black fascia narrowed laterally and biconcave medianly in front; the lateral black spots are opaque on their inner borders, the median one wholly opaque, the posterior fascia opaque in front. Fourth segment practically like the third anteriorly but the posterior black fascia is broken up to form a narrow median vitta and a black triangle on either side. The fifth segment bears a median black vitta and a narrow black posterior triangle in addition to large lateral triangles which do not reach quite to the base of the segment although they are wider in front. Hair short and black, longer on the sides, pale on the base of the abdomen, on the sides of the first two segments, and sometimes basally on the lateral margins of the third and fourth. Genitalia shining black. Venter yellowish.

TYPES.—Holotype and paratype, males, E. E. A. de Cuba, No. 9583, feeding on Chermidæ.

In some respects this species agrees with the description of *Syrphus radiatus* Bigot, and the two names may eventually be found to apply to the same species. Bigot does not mention the black facial vitta.

Allograpta fasciata, new species

Related to *micrura* Osten Sacken but readily distinguished by the much more produced face and entire fascia on the fifth abdominal segment. Length, 9.5 mm.

FEMALE.—Face, cheeks, and the sides of the front on the lowest two-fifths yellow; a broad, median, facial vitta black; a yellow band extending across at the bases of the antennæ. Hair whitish; front shining blue-black, with black pile; occiput thickly cinereous-white pollinose. Cheeks wide behind, narrow in front, the oral margin oblique in profile. Face very strongly produced below, the oral angles and the tip of the anterior oral margin in a vertical plane; tubercle prominent. Antennæ widely separated, reddish, the third segment broadly brown above; arista blackish.

Thorax metallic blackish-blue, the mesonotum somewhat dulled. Humeri, posterior calli, a narrow stripe on the posterior border of the mesopleura, and a large spot on the upper border of the sternopleura yellow; scutellum dull reddish-yellow, black-haired, the free border dull black below. Pile whitish, a few scattered black hairs on the posterior half of the mesonotum.

Legs reddish yellow, the coxæ and tarsi brown, the anterior four tarsi rather paler basally. Hair pale yellowish, the femora with a few blackish hairs apically, the posterior tibiæ with a row of long black hairs anterodorsally; tarsi with short, black hair above on the apical three or four segments.

Wings cinereous hyaline. Squamæ and halteres yellowish.

Abdomen black, with four reddish-yellow fasciæ, the posterior three rather strongly arched. Sides of the first segment yellow in front. Pale fascia on the second segment situated near the middle, widest laterally, almost straight in front. Pale fasciæ on the third and fourth segments rather strongly arched, somewhat widened laterally, well separated from the anterior margin of the segments; band on the fifth segment resting on the anterior margin on the median portion. All the fasciæ are separated from the lateral margin of the abdomen and have the outer ends more or less convex; apex of the fifth segment narrowly reddish yellow. Sixth and seventh segments wholly black. Hair black, yellowish on the broad base of the abdomen. Venter reddish yellow, yellow pilose.

TYPE.—Female, "Peru."

This species, as well as *micrura* Osten Sacken and *picticauda* Bigot, is not typical of *Allograpta*, but they all fit in this genus better than in *Sphærophoria*. In these three species the lower part of the head is produced as in *Sphærophoria*, but the males do not have enlarged genitalia. Like the genus *Claraplumula* Shannon, all the species of *Sphærophoria* and *Allograpta* have the metasternum pilose, and it should be pointed out that this character occurs in species of *Syrphus*, *Epistrophe*, and other genera. *A. fasciata* must resemble species of *Fazia* Shannon,

but it does not appear to belong to the genus as originally defined. In addition to these three American species there are some other forms, occurring in the Australasian and Oceanic regions, that are referable to *Allograpta*, if the generic concept is widened to include *micrura*, etc., as I think it should be.

SALPINGOGASTER Schiner

I present a key to the described species belonging to this genus.

TABLE OF SPECIES

1.—Face wholly yellow....2.
Face with black or dark-reddish median vitta or with a black spot above....11.
2.—Yellowish or rusty reddish species....3.
Blackish species, the pleura and abdomen not simultaneously yellowish....6.
3.—Pleura blackish or ferruginous with a broad yellow band between the humeri and the middle coxæ....19.
Pleura yellow with narrow brownish stripes....4.
4.—Mesonotum ochre-yellow with three dull-black vittæ....*minor* Austen.
Mesonotum blackish or with brownish-yellow pollen and two grayish vittæ...5.
5.—Frontal triangle wholly yellow....*frontalis* Sack.
Frontal triangle largely black....18.
6.—Legs shining black, the apex of the femora and basal third of the tibiæ whitish. *macula* Schiner.
Legs differently colored....7.
7.—Thorax and legs brownish red, with yellow markings; abdomen black. *nova* Giglio-Tos.
Thorax black or brown; if marked with yellow, the legs yellow; always partly or wholly yellowish....8.
8.—Abdomen shining black or brown, except the first segment....10.
Abdomen reddish with brown markings, or yellow with black apex....9.
9.—Abdomen reddish with brown markings....*cothurnata* Bigot.
Abdomen with the basal four segments yellow, the apical ones black. *nigricauda* Sack.
10.—Mesonotum chocolate-brown, with two dull-yellow vittæ; abdomen black, the first segment yellow....*abdominalis* Sack.
Mesonotum dull black, with three yellow vittæ; second to fourth segments with yellow spots....*nigriventris* Bigot.
11.—Facial tubercle reddish, sometimes flecked with black....12.
Facial tubercle or a spot above, black....15.
12.—Abdomen, from lateral view, suddenly widened at the third segment. *bicolor* Sack.
Abdomen slender....13.
13.—Mesonotum with two yellow, U-shaped markings before the scutellum. *gracilis* Sack.
Mesonotum without such markings....14.
14.—Scutellum wholly rusty reddish....*bruneri*, n. sp.
Scutellum yellow, the basal half brown or black....*texana*, n. sp.

15.—Pleura and legs yellow.....*costalis* Walker.
Pleura black with yellow markings.....16.
16.—Scutellum black on the disc.....17.
Scutellum wholly yellowish.....*lineata* Sack.
17.—Basal third of tibiæ whitish.....*nigra* Schiner.
Basal third of tibiæ black or brownish.....*limbipennis* Williston.
18.—A narrow brown vitta extending from base of second segment to apex of abdomen; front of female with two roundish spots near the middle.
bipunctifrons Curran.
Abdomen not vittate.....*virgata* Austen.
19.—Pleura ferruginous; fifth sternite of male beset with spinules.
punctifrons Curran.
Pleura blackish; fifth sternite not spinose.....*pygophora* Schiner.

Salpingogaster bruneri, new species

Pale rusty reddish; wings with a brown fascia across the middle. Length about 16 mm.

MALE.—Face, cheeks, and frontal triangle yellow; the frontal triangle, except on the very broad orbits, and a broad facial vitta, which does not extend below the tubercle, pale reddish-brown. Vertical triangle reddish yellow, the ocellar triangle brown; occiput black in ground color, cinereous pollinose. Hair yellow; short and black on the frontal and vertical triangles. Antennæ pale brownish-red.

Mesonotum rusty reddish, with a pair of posteriorly abbreviated, narrow vittæ and the notopleura black, the lateral margins broadly yellow in front of the notopleura. Pleura pale ferruginous, darker above; a broad stripe extending from the upper edge of the mesopleura to the middle of the sternopleura and a large, suboval spot on the hypopleura pale yellow. Scutellum wholly reddish. Hair very short, brownish yellow.

Legs reddish; coxæ ferruginous; posterior femora with a broad, obscure, brownish preapical band; posterior tibiæ black on the apical third; tarsi wholly pale.

Wings hyaline, with yellowish tinge; costal border rather broadly luteous, the apical fifth brown; a rather narrow brown fascia extends across the middle of the wing over the cross-veins, its outer edge gently concave, the inner edge convex.

Abdomen long and slender, the second segment almost as long as the remaining segments combined, wholly rusty reddish except the basal half of the first segment and a broad, obscure pale-yellowish band near the basal fourth of the second segment. Base of the first segment very strongly produced to form a mammiform process on either side. Hair yellowish basally and on the sides of the abdomen, brownish dorsally and on the whole of the apical segments. Apex of the genitalia acutely produced. Median half of the fifth sternite strongly produced downward apically, the apex of the produced part shallowly emarginate, the sternite without coarse setulæ.

TYPE.—Male, Sierra Maestra, Cuba, 600 to 900 meters, July 10–20, 1922 (C. H. Ballou and S. C. Bruner).

Salpingogaster texana, new species

Blackish, the face, thorax, and abdomen with yellow markings, third vein rather shallowly looped into the apical cell; costal border brown on the basal three-fourths. Length, about 13 mm.

FEMALE.—Face, cheeks, and front reddish ferruginous, the orbits broadly yellow; upper fifth of the front shining brown; face with white pollen, the tubercle bare; front with weak, oblique wrinkles except above and below; occiput black in ground color, cinereous pollinose. Hair short, whitish, black on the sides of the antennal tubercle and the brown part of the front. Antennæ brownish red, the third segment mostly brown.

Thorax brownish ferruginous, the mesonotum black, the sides broadly ferruginous and with a posteriorly tapering yellow vitta extending from the humeri to the inner end of the notopleura; a slender median gray-pollinose vitta extends from the anterior margin, becoming obsolete posteriorly where there is evidence of a rectangular, ferruginous, prescutellar spot. Scutellum brown with about the apical half yellow. A narrow yellow stripe occupies the posterior border of the mesopleura and ends below in a large spot on the sternopleura.

Legs ferruginous or blackish, the tips of the femora and the basal fourth of the tibiæ yellow.

Wings hyaline, the costal border brown on the basal three-fourths, the cross-veins at the middle of the wing, the base of the wing and the posterior border of the second basal cell brownish. Squamæ white. Halteres reddish.

Abdomen black, the second segment reddish brown; first segment with the sides yellow in front, not strongly produced; third segment with a laterally widening basal yellow fascia which is separated from the base of the segment on the median half; sides of the fourth and fifth segments very narrowly yellow on the basal half or less; narrow apices of the third and fourth segments yellow. Venter blackish or brownish, with a yellow fascia on the base of the third sternite. Hair short, black, pale basally and on the sides of the first four segments.

TYPE.—Female, Brownsville, Texas, February 11, 1915 (P. H. Timberlake), larva feeding on *Dactylopius confusus*.

This species appears to connect *Salpingogaster* and *Baccha* Fabricius, but it fits better in the former. The dip of the third vein into the apical cell is much shallower than in any of the other species of *Salpingogaster*, but the shape of the head and other characters, especially the presence of setæ on the under surface of the posterior femora, indicate its true affinities.

Pocota bomboides Hunter

HUNTER, 1897, Can. Ent., XXIX, p. 141.

Doctor C. L. Fluke has brought to my attention two specimens of this species from Oregon, in which the first to third abdominal segments are reddish-yellow pilose, the only black pile on the dorsum of the abdomen being restricted to the apex of the fourth segment in the male and to the fifth segment in the female. Both these specimens have the scutellum yellow pilose, and the female has a narrow, yellow pilose prescutellar band. In another Oregon specimen the scutellum has black and yellow pile intermixed. In most specimens of *bomboides* the scutellar pile is all black, and the abdomen bears yellow pile only on the fourth segment.

The genitalia of the three forms mentioned above show no differences, and it is safe to say that the specimens represent the extremes of variation in color of the pile.

I have seen specimens from California, Oregon, Washington, and British Columbia.

SPHECOMYIA Latreille

For some strange reason *Tyzenhauzia vespiformis* Gorski has been placed as a synonym of *Chrysotoxum vittatum* Wiedemann, and since 1862 the European species has been recorded as *vittatum*. In North America there are five described species of *Sphecomyia*, one of which, *vespiformis*, was originally described from the Palæarctic region and later from America as *brevicornis* by Osten Sacken. Apparently all European records of *vittata* refer to *vespiformis*.

The following key separates the described species.

TABLE OF SPECIES

1.—Mesonotum with two interrupted yellow pollinose vittæ; disc of scutellum yellow pollinose, the apical border bare ..... 2.
Mesonotum without vittæ; scutellum mostly shining ..... 3.
2.—Black median fasciæ on third and fourth abdominal segments interrupted to form two transverse spots and a median diamond-shaped spot (*brevicornis*. Osten Sacken) ..... *vespiformis* Gorski.
Black median fasciæ entire, the preceding yellow fascia obscurely interrupted in the middle ..... *vittata* Wiedemann.
3.—Scutellum with the base yellow pollinose ..... *pattoni* Williston.
Scutellum without pale pollen ..... 4.
4.—Mesonotum with a yellow prescutellar fascia ..... *occidentalis* Osburn.
Mesonotum wholly shining black behind the suture ..... *nasica* Osburn.

Meromacrus potens, new species

Related to *cinctus* Drury but larger, the scutellum black in ground color and with longer, reddish-yellow pile, the abdomen with mostly yellow and tawny hairs. Length, 19 to 21 mm.

MALE.—Head black in ground color; sides of the frontal triangle, lateral third of the face, occiput, and the vertical triangle in front of the ocelli whitish pollinose; middle of face and front, and the cheeks, shining black. Pile black, the occiput on the lower two-thirds, cheeks in front and behind, face, and the sides of the front, with white pile. Antennæ blackish.

Thorax black, the mesonotum dull; humeri with brownish-gray pollen. Yellow tomentose markings as follows: a pair of large, subtriangular spots on the front margin inside the humeri, the notopleura and a contiguous spot on the mesopleura and a prescutellar fascia. Pile black, rather sparse, yellowish dorsally in front of the suture and on the scutellum, although there may be a few scattered black hairs on the latter.

Legs black; posterior femora strongly swollen, very gently concave below, with a large, strong tubercle posteroventrally near the base; hair on middle femora extremely dense on the basal third of the anterior surface.

Wings cinereous hyaline, the anterior third pale brownish, the veins more or less bordered with brownish. Squamæ cinereous or pale brownish, the border, fringe, and pubescence yellowish.

Abdomen black or brown, the fourth segment mostly metallic blue, the second with a broadly interrupted brownish-red fascia, the inner ends of the spots formed obtuse, the posterior edges oblique but not reaching the posterior border of the segment, the outer ends produced and reaching the base of the segment broadly at the sides. Third segment brown with a broad band of short, dense, yellow pile on the base, the fascia gently widening to the lateral margin and very narrowly interrupted in the middle. Fourth segment metallic blue, the sides with dense, yellow pile. Genitalia shining bluish. First segment, second except the sides and extreme apex, and the third except the extreme apex, tawny or rusty reddish pilose, the sides of the first and second, apices of the second and third, the fourth segment except the sides, and the genitalia black pilose. Venter black pilose apically, pale basally.

FEMALE.—Front black, black-haired, the sides narrowly white pollinose and pilose to above the middle. Mesonotum with four grayish vittæ, the suture of the same color. Posterior femora smaller; legs without the dense pile. Yellow pilose spots on the fourth abdominal segment limited to the basal half; fifth segment steel-blue.

TYPES.—Holotype, male, B. de Joaquin, Sierra Maestra, Cuba, July 10–20, 1922 (C. H. Ballou and S. C. Bruner); allotype, female, Sierra Maestra, July 10–20, 1922 (Ballou and Brunner); paratype, male, same data.

I have adopted the manuscript name appended to the male, for this species. At first glance the species appears to differ from *cinctus* Drury only by its larger size, but *cinctus* shows no trace of the mesonotal vittæ, the color being uniform and rather velvety, and a comparison shows many other differences. As a key to the species will be published elsewhere in the near future I do not present one in this paper.